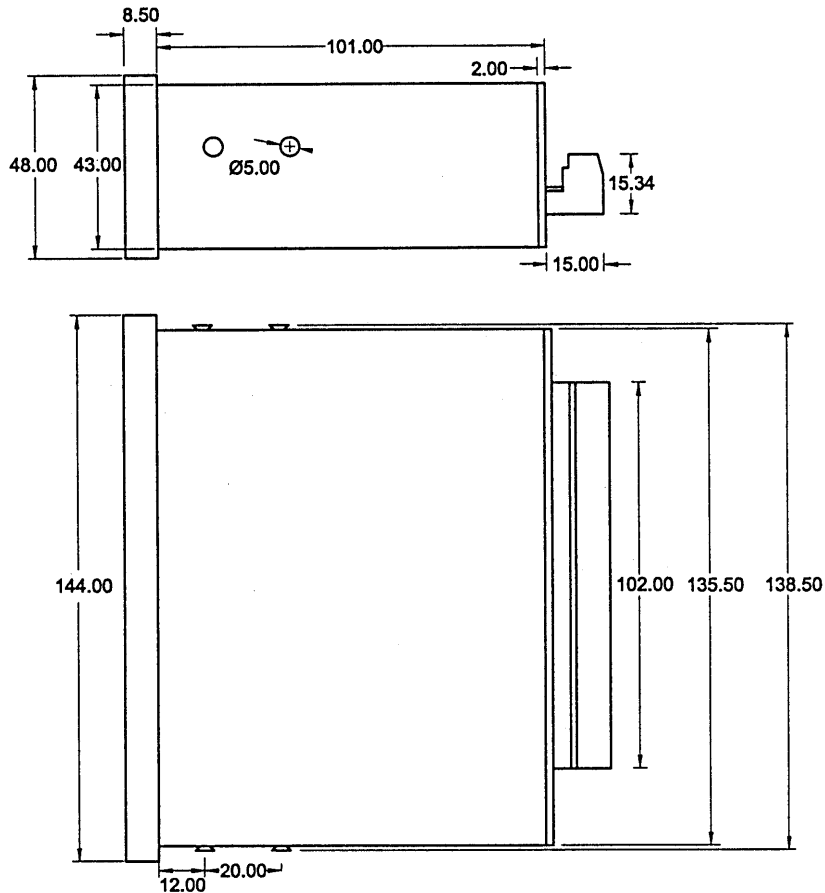


Digital Panel Meters,
Programmable

DPA 20/25 (144x48)



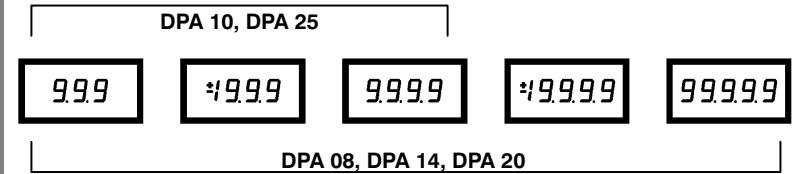
Dimensions in mm

– Specifications subject to change without notice; date of issue 03/07 –

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DPA 08
DPA 10
DPA 14
DPA 20
DPA 25



Product Outline

mA / V DC mV DC	DPA	08 10	-	30 31 40 41 50	D E	1	0 F	R G	- 4 -7	
mA / V DC µA / mV DC 2x mA / V DC A / V AC Pt 100 Pt 1000	DPA	14	-	30 31 40 41 50	A D B F M L	1 2	0 1 2 4 7 8 D G H R S	R G	- 4 -9	-M
mA / V DC A / V AC	DPA	20 25	-	30 31 40 41 50	A F	1 2	0 R	R G	- 4	

Technical Data refer to Product Guide No. 712.U.001.##

Installation

Mounting

Insert DPM through cutout from the front of the panel. Fit the two screw-clamps supplied to the countersunk screws located on the meter-case and tighten the screw-spindles.

Connection

Caution All connection leads shall be voltage-free prior to connecting the meter.

Verify input configuration and auxiliary supply (see type label on the meter).

Note Use screened or twisted leads positioned away from interference-subjected lines to avoid measuring errors by interference voltages, or when measuring low Amps or Volts (≤ 2 mA, ≤ 2 V) or if strong interference sources are straying.

Terminals screw terminals on terminal block

Wire Cross-Section 2.5 mm² max.

Digital Panel Meters, Programmable

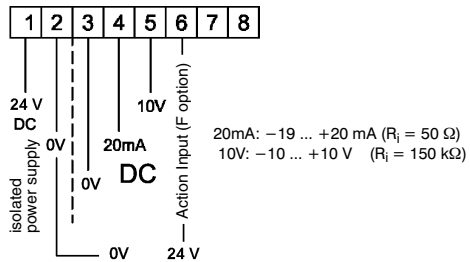
Connect the DPM following the pin assignment on the meter label.

Caution Verify meter connections before applying power to the meter. Adjust an activated meter by means of an **isolated screw driver** only.

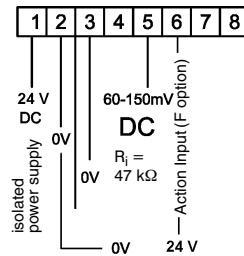
Terminal Connection

plug-in terminal barrier strip

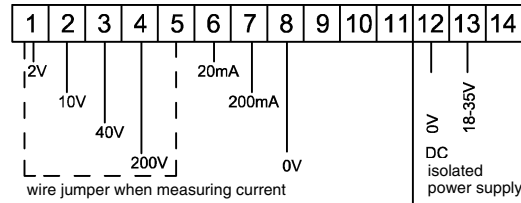
DPA 08/10
E input



D input

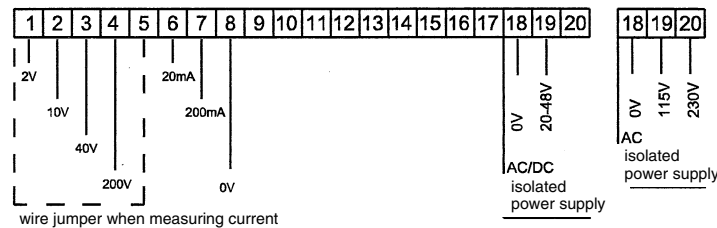


DPA 14



Terminal	Ri
1	100 kOhm
2	560 kOhm
3	2,2 MOhm
4	12 MOhm
6	100 Ohm
7	10 Ohm

DPA 20/25



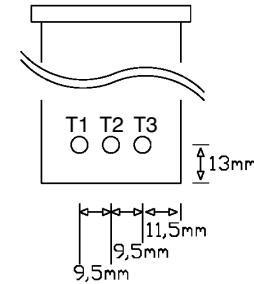
Terminal	Ri
1	100 kOhm
2	560 kOhm
3	2,2 MOhm
4	12 MOhm
6	100 Ohm
7	10 Ohm

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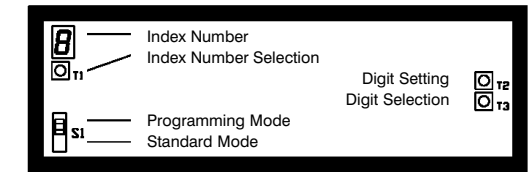
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Operating Elements and Display

DPA 08/10

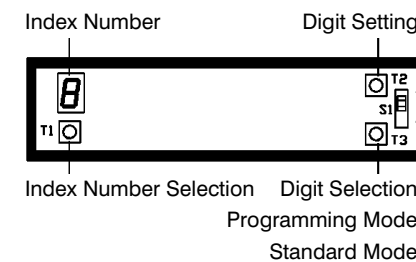


DPA 20/25

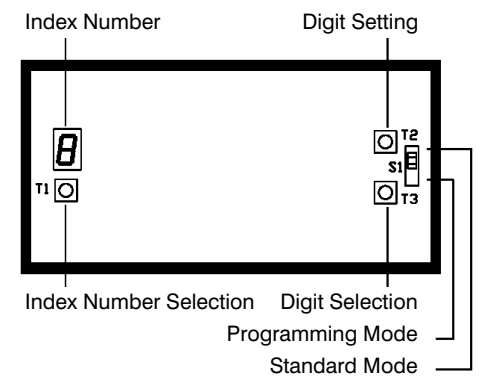


Operating elements behind detachable display lens

DPA 14 ...



DPA 14 ... -4



Display Messages

Display	Description
EPP	Programming EEPROM
----	Overflow (center LED-segments flash)
- -	Line-break display (falling 25% below measuring value)

Digital Panel Meters, Programmable

Programming DPA 08/10

The display- and input signal- ranges are determined by setting the minimum and maximum display value and by applying the minimum and maximum input signal to the meter input (in case of negative minimum display value, however, the value of the input signal assigned to the display zero).

Operating Elements

- T3 key Change from standard mode to programming mode, through connect menu items and restore standard mode.
 T2 key Select digit to be adjusted.
 T1 key The digit selected will be displayed by the flashing decimal point.
 Set digit selected.

Programming the Device

- Press T3 key
 The device selects programming mode or the next menu item.

DPA 08/10, E Input (20 mA/10V)

Menu Item	Display	Description
Pr	Pr ___ 0 ___ A ___ U	EXTERNAL calibration INTERNAL calibration, current (max. 20 mA) INTERNAL calibration, voltage (max. 10 V)
0	P 0	Input display initial value Select digit by T2, set digit by T1
1	P 1 P – L	EXTERNAL calibration: Apply minimum input signal to measuring input, take-over by T3 INTERNAL calibration: enter minimum internal input signal Select digit by T2, set digit by T1
2	P 2	Input display end value * Select digit by T2, set digit by T1
3	P 3 P – H	EXTERNAL calibration: Apply maximum input signal to measuring input, take-over by T3 INTERNAL calibration: enter maximum internal input signal Select digit by T2, set digit by T1
4	P 4 ___ 1 ... ___ 9 9	Averaging of 1 to 99 measurements
	_ _ _ _ L _ _	Line-break indication off Line - break indication when measuring value falls by 25%
5	P 5 ___ 0 ___ 2 ___ 5 ___ 1 0	Rounding of last position off Rounding of last position in steps two by two Rounding of last position in steps five by five Rounding of last position in steps ten by ten

DPA 08/10, D Input (60 – 150 mV)

Menu Item	Display	Description
Pr	Pr ___ 0	EXTERNAL calibration
0	P 0	Input display initial value Select digit by T2, set digit by T1
1	P 1 P – L	EXTERNAL calibration: Apply minimum input signal to measuring input – take-over by T3
2	P 2	Input display end value * Select digit by T2, set digit by T1
3	P 3 P – H	EXTERNAL calibration: Apply maximum input signal to measuring input – take-over by T3
4	P 4 ___ 1 ... ___ 9 9	Averaging of 1 to 99 measurements
	_ _ _ _ L _ _	Line-break indication off Line - break indication when measuring value falls by 25%
5	P 5 ___ 0 ___ 2 ___ 5 ___ 1 0	Rounding of last position off Rounding of last position in steps two by two Rounding of last position in steps five by five Rounding of last position in steps ten by ten

DPA 08/10, F Option: Action Input

6	P 6 ___ 0	Free
	_ 0 _	Action input off
	_ 1 _	Display dark
	_ 2 _	Segment test
	_ 3 _	Display Hold
	_ 4 _	Display indicates ON
	_ 5 _	Display indicates OFF
	_ 6 _	Display indicates HELP

Back to Standard Mode

- Press T3 key
 The display indicates "EEP" for approximately 10 seconds.
 Within this time, the parameters set before will be written into the EEPROM.

* Notes

When requiring a decimal point in the standard mode, it must be placed on the corresponding position before leaving this program step.

For digital displays with a polarity sign (\pm), adjust displaying the polarity sign:

- "–" negative values with polarity sign, positive values without polarity sign
- "+" negative values without polarity sign, positive values with polarity sign
- " \pm " negative and positive values with polarity sign
- " " negative and positive values without polarity sign

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Digital Panel Meters, Programmable

Programming DPA 14, DPA 20/25

The display- and input-signal ranges are set similar to DPA 08/10. The selected menu item however will be indicated as index number by an additional small one-digit display.

The one-digit display of the index number (InN) may simultaneously be used in standard mode to designate the switching state of the breakover point resp. of the setpoint alarm. See Option 7, 8, R

Operating Elements (All operating elements are front accessible after front bezel and display lens have been removed.)

Slide Switch S1 Switch over between standard mode and programming mode. Index number "0" will be displayed when entering programming mode. "EEP" will flash on the large display when leaving the programming mode; the values programmed will be stored in the EEPROM.

T1 key Select program step / index number (The respective program step will be indicated on the small one-digit LED-display – the so called "index number" InN – when being in programming mode.)

T3 key Select digit / decimal point / polarity sign to be set. (The digit selected will be accentuated by the flashing decimal point.)
Additional Function: By pressing key T3 the initial display value resp. end value will be allocated (InN 1 and 3) after applying the minimum resp. maximum input signal to the measuring input.

T2 key Set digit selected. (Each full digit position may be set between 0 and 9. In addition the decimal point and with ½ digit the polarity sign may be set.)

Programming the Device

– Move S1 slide switch into "Programming Mode" position
The device selects programming mode.

– Press T1 key
The device selects the next menu item.

Back to Standard Mode

– Move S1 slide switch into "Standard Mode" position
The display indicates "EEP" for approximately 10 seconds.
Within this time, the parameters set before will be written into the EEPROM.

* Notes

When requiring a decimal point in the standard mode, it must be placed on the corresponding position before leaving this program step.

For digital displays with a polarity sign (\pm), adjust displaying the polarity sign:

- "–" negative values with polarity sign, positive values without polarity sign
- "+" negative values without polarity sign, positive values with polarity sign
- " \pm " negative and positive values with polarity sign
- " " negative and positive values without polarity sign

DPA 14, A, D, F Inputs

DPA 20/25, A, F Inputs

Index Number	Display	Description
0		Input display – initial value. Select digit by T3, set digit by T2 The minimum display-value must be positive (≥ 0). (If a negative display-value is desired, in this case adjust the display-value "0", apply the input signal belonging to it under index number 1.)
1	P – L	Take over minimum input signal by T3 (applying at measuring input).
2		Input display – end value, decimal point and polarity sign *
3	P – H	Take over maximum input signal by T3 (applying at measuring input).
4	0 0 1 ... 5 0 0	Mean value formation from 1 to 500 measurements
5	_ _ 0 _ _ 2 _ _ 5 _ 1 0	Rounding of last position none in steps two by two in steps five by five in steps ten by ten
6	_ _ 0 _ _ 1	Reciprocal display-value standard display, as set in InN 0 to 3 display is inverse to measuring signal
	_ 0 _ _ 1 _ _ _ _	"Line-break indication" at input A: 4 ... 20 mA no line-break indication with line-break indication "– –" when measuring value falls by 25% (<3 mA)
	0 _ _ 1 _ _	For option 2 (analog output 0/4...20 mA) only: analog output 0 ... 20 mA analog output 4 ... 20 mA

DPA 14, B Input

Programming is similar to DPA 14, A, D, F Inputs

Index Number	Display	Description
0		Input 1: input display – initial value
1	P – L	Input 1: take over min. input signal (applying)
2		Input 1: input display – end value, decimal point
3	P – H	Input 1: take over max. input signal (applying)
4		Input 2: input display – initial value
5	P – L	Input 2: take over min. input signal (applying)
6		Input 2: input display – end value, decimal point

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Digital Panel Meters,
Programmable

7	P - H	Input 2: take over max. input signal (applying)
8	0 0 1 ... 5 0 0	Mean value formation from alternatively 1 to 500 measurements
9	-- 0 -- 2 -- 5 _ 1 0	Rounding of last position none in steps two by two in steps five by five in steps ten by ten
A	-- 0 -- 1	Reciprocal display -value standard display, as set in InN 0 to 7 display is inverse to measuring signal
	_ 0 _ _ 1 _	"Line-break indication" at input A: 4 ... 20 mA no line-break indication with line-break indication "- -" when measuring value falls by 25% (<3 mA)

DPA 14, L Input (PT 1000)

Index Number	Display	Description
0	--- 1 --- 2 -- °C - ° F	PT 1000 0 ... 199,9°C / -32 ... 392°F PT 1000 0 ... 800 °C / -32 ... 1472°F PT 1000 °Centigrade PT 1000 °Fahrenheit
1	_ 1 _ _ 0 _	Zero adjustment for PT 1000, 2 wire / 3 wire system (resistor 1 kΩ ±0.1% connected to terminals 3 and 4) no zero adjustment for PT 1000, 4 wire system
2		actuate zero adjustment by T3

DPA 14, M Input (PT 100)

Index Number	Display	Description
0	--- 1 --- 2 -- °C - ° F	PT 100 0 ... 199,9°C / -32 ... 392°F PT 100 0 ... 800 °C / -32 ... 1472°F PT 100 °Centigrade PT 100 °Fahrenheit
1	_ 1 _ _ 0 _	Zero adjustment for PT 100, 2 wire / 3 wire system (resistor 100 Ω ±0.1% connected to terminals 3 and 4) no zero adjustment for PT 100, 4 wire system
2		actuate zero adjustment by T3

DPA 14, L or M Input with Analogue Output (Option 1, 2 or 4)

Index Number	Display	Description
3	-----	Initial temperature value analogue output
4	-----	End temperature value analogue output

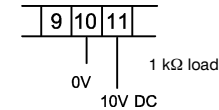
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DPA 14 Options (with A, E, D, F, L or M input only), R option also with DPA 20/25

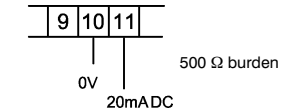
DPA 14

Option 1: Analogue Output 0 ... 10 V DC
Option 1: ~ electrically isolated



DPA 14

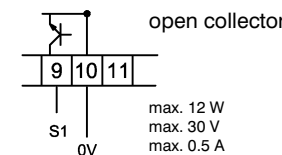
Option 2: Analogue Output 0/4 ... 20 mA DC



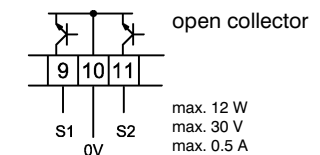
Index No.	Display	Description
6	0 _ _ 1 _ _	0 ... 20 mA DC 4 ... 20 mA DC

Initial and end values of analogue outputs are based on the minimum and maximum input signals (Index No. 1 + 3 with A, E, D, F input or Index No. 3 + 4 with L, M input).

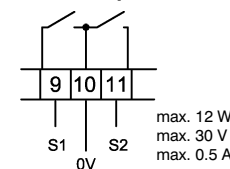
DPA 14 Option 7: 1 Control Output



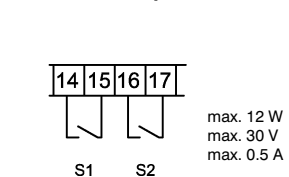
DPA 14 Option 8: 2 Control Outputs



DPA 14 Option R: 2 Relay Outputs



DPA 20/25 Option R: 2 Relay Outputs



The following index numbers in the programming mode are used to set switching thresholds:

1st Control Output o.c. / 1st Relay Output:

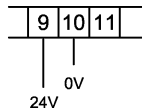
Index No.	Display	Description
7	S1	upper switching threshold
8	S1	lower switching threshold
9	-- 0 -- 1 _ 0 _ _ 1 _ _ 2 _ _ 3 _ 0 _ _ 1 _ _	inactive active open circuit current HI (Max) contact closed circuit current HI (Max) contact open circuit current LO (Min) contact closed circuit current LO (Min) contact standard display, if S1 is active flashing display, if S1 is active

Digital Panel Meters,
Programmable

2nd Control Output o.c. / 2nd Relay Output:

Index No.	Display	Description
A	S2	upper switching threshold
b	S2	lower switching threshold
c	-- 0	inactive
	-- 1	active
	- 0 -	open circuit current HI (Max) contact
	- 1 -	closed circuit current HI (Max) contact
	- 2 -	open circuit current LO (Min) contact
	- 3 -	closed circuit current LO (Min) contact
	0 --	standard display, if S2 is active
	1 --	flashing display, if S2 is active

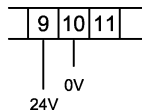
DPA 14 Option D: Blanking Input



Functional Input active—high 24 V

Signal	Description
L signal	Display shows actual measured value
H signal	Display blanked

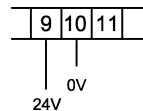
DPA 14 Option G: Segment Test Input



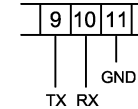
Functional Input active—high 24 V

Signal	Description	Signal	Description
L signal	Display shows actual measured value	L signal	Display shows actual measured value
H signal	All segments and decimal points are powered	H signal	Display holds latest measured value

DPA 14 Option H: Display Hold Input



DPA 14 Option S: Serial Output RS232



Index No.	Display	Description
7	-- 0	Baud rate 150 bits/s
	-- 1	300 bits/s
	-- 2	600 bits/s
	-- 3	1200 bits/s
	-- 4	2400 bits/s
	-- 5	4800 bits/s
	-- 6	9600 bits/s
	-- 7	19200 bits/s
	- 0 -	Parity none, 8 data bits
	- 1 -	even, 7 data bits
	- 2 -	odd, 7 data bits
	- 3 -	even, 8 data bits
	- 4 -	odd, 8 data bits
8	-- 00	Device address no address
	-- x	10 ⁰ address
	- x -	10 ¹ address
9	-- 0	Write direction left to right
	-- 1	right to left
	- 0 -	Sending output off
	- 1 -	sign - value
	- 2 -	STX - sign - value - ETX
	- 3 -	STX - address - sign - value - ETX
	- 4 -	SOH - adr. - STX - sign - value - ETX
	0 --	Transmission request off
	1 --	transmission after adress reception
	2 --	transmission after STX/address/ETX reception

DPA 14 Option -M: Min./Max. Value Memory

T1, T2, T3 keys are accessible through the display lens.

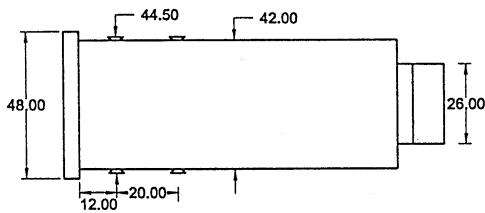
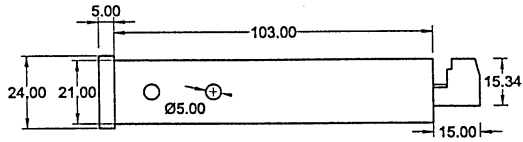
- T1 action for more than 5 seconds: A reference measurement is performed.
- T1 action for less than 5 seconds: Minimum and maximum values are reset. (The value of reference measurement is kept.)
- T2 action: Show maximum value
- T3 action: Show minimum value

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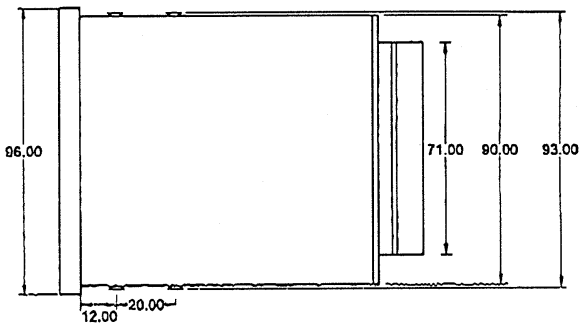
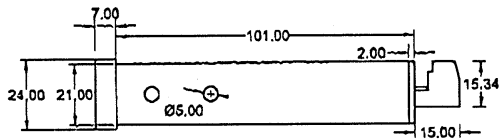
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Dimensions

DPA 08/10 (48x24)



DPA 14 (96x24)



DPA 14 ... -4 (96x48)

